

the 17th; on the 18th it was north of Lake Superior; from this point it changed its course to a more northeasterly direction, and the location of centre could not to be determined after the midnight report of the 18th. At no time was the centre within the limits of stations of observations. Light rains fell in the Missouri and Mississippi valleys, the lake region, and New England.

V.—On the 18th the barometer was considerably below the normal at the stations in the British territory north of Montana, and the direction of the wind showed that the centre of area was to the north of these stations, but could not be definitely located until the 19th, on which date it was north of Fort Garry, Manitoba. The barometer was quite low at Fort Garry, reading 29.09. This area cannot be traced farther, but as it passed off it left a secondary depression in the Missouri valley on the 21st. The area thus formed moved in a northeasterly direction, and on the morning of the 22d it was central over Lake Superior. Violent gales with rain marked its passage over the upper lakes. It continued in a northeasterly course and passed beyond the limits of observation on the 23d.

VI.—This area made its appearance on the morning of the 29th, in the extreme northwest, moving in a southeasterly direction, accompanied by rain. On the 27th it was central in Minnesota, on the 28th in Indiana, on the 29th in Virginia, and on the latter date passed into the Atlantic off the North Carolina coast, and undoubtedly united with the hurricane described as number viii. under "north Atlantic storms" which was raging on that date and was so disastrous to vessels in the Atlantic ocean, and in the vicinity of Newfoundland. Rain fell in nearly all the districts east of the Missouri valley, and high northeasterly winds prevailed on the Atlantic coast during the progress of the storm.

VII.—The reports from the Saskatchewan valley, on the afternoon of the 30th, showed the presence of an area of low barometer in that region. On the morning of the 31st the centre was north of Dakota. The area moved in a southeasterly direction, and at midnight of the 31st it was central in southern Minnesota. This storm increased considerably in energy after the midnight report of the 31st, and became quite violent upon reaching the lake region. Its further description will be found in the REVIEW for September.

NORTH ATLANTIC STORMS DURING AUGUST, 1883.

[Pressure expressed in inches and in millimetres; wind-force by scale of 0–10.]

Chart ii. exhibits the tracks of the principal depressions that have moved over the north Atlantic ocean during August, 1883. The location of the various storm-centres has been approximately determined from reports of observations furnished by agents and captains of ocean steamships and sailing vessels in the north Atlantic, and from other miscellaneous data received at this office up to September 21st. The observations used, are, in general, simultaneous, being taken each day at 7 h. 0 m. Washington, or 0 h. 8 m. p. m. Greenwich, mean time.

Of the eight depressions charted, five are traced from W. 65° northeastward to beyond the fifteenth meridian, and three, numbers i., ii., and iii., apparently developed to the eastward of W. 35°. Of the former, number vi. was a tropical hurricane which moved northwestward at a considerable distance from the coasts of the United States, and recurved probably near W. 67°, and in the latitude of the Bermudas. So far as can be determined from the data now at hand, low area viii. appears to have developed over the ocean between the Bermudas and the United States, and to have moved northward to about the forty-second parallel, when the course changed to the northeastward, and the disturbance swept over the banks of Newfoundland as a severe storm; it appears to have increased in energy as it moved over the ocean, and was probably identical with the violent storm encountered during September 1st and 2d, by vessels off the coasts of the British Isles. The two depressions above referred to displayed unusual violence throughout the entire period for which they are charted, and caused great loss of life, and immense damage to shipping.

As a peculiar feature of the hurricane charted as viii. may be mentioned the unusually high latitude to which it ascended before recurving to the eastward.

The weather over the North Atlantic during the month was in general stormy, and may be summarized as follows: 1st to 11th, moderate to strong breezes, generally southwest to west, occasional fogs; 12th to 18th, generally strong variable breezes increasing to strong gales, squally, rainy weather; 18th to 31st, strong breezes to heavy gales, cloudy or rainy weather, occasional fogs.

The following descriptions relate to the depressions charted:

I.—This depression first appeared on the 7th, between N. 45° and 55° and W. 25° and 35°. On that date the s. s. "Wisconsin" in N. 51° 2', W. 26° 45', reported barometer 29.59 (751.6), a fall of .45 inch during the preceding forty-eight hours; wind s. by w., force 5. Moving eastward during the day, the depression appeared off the western coast of Ireland, where it probably became merged in low area ii.

II.—This was a deep depression which appeared off the coast of northern Scotland on the 8th; the lowest barometric reading, 29.17 (740.9), was observed by the bark "Ottawa" in N. 59° 31', W. 11° 13', wind nne., force 4, cloudy. It probably moved over Scotland to the North sea.

III.—This depression was first noticed in about N. 48°, W. 30°, on the 11th, the centre of disturbance lying to the southward of the s. s. "Illinois," which reported, in N. 48° 09', W. 32° 05', barometer 29.64 (752.8); wind ne., strong breeze increasing to strong gale; barometer falling slowly. During the 11th the disturbance moved slowly northeastward, and on the 12th the centre passed close to the s. s. "Illinois." At 2 a. m. the wind backed to n., with very heavy rain and high sea; and at 6 a. m., in N. 49° 15', W. 26° 45', the barometer read 28.85 (732.8); wind hauling to wnw. and becoming light. The s. s. "Llandaff City," on the 11th had e. wind with heavy rain; at 1.32 a. m., of the 12th, in N. 50° 32', W. 23° 12', e. wind, force 6, fine weather, barometer 29.63 (752.6); at 7 a. m., (Greenwich mean time,) barometer 28.48 (748.8), wind nne., force 8; at 1.44 p. m., (Greenwich mean time,) in N. 50° 16', W. 25° 57', wind n., force 9, barometer 29.63 (752.6), rising. On the 13th the depression was central near N. 51° W. 20°; the s. s. "Daniel Steinmann," in about N. 51° 04', W. 19° 48', reported, 9 a. m., wind se., force 4, shifting, during a heavy rain squall at 0.30 p. m., to nw. and w. and increasing to force 9; at 7 p. m. barometer 28.32 (744.7); at midnight the squalls became less violent and wind moderated to force 3. The s. s. "Strassburg," in N. 50° 15', W. 18° 33', reported barometer 29.05 (737.9), wind ssw., force 6–7, light rain, squally. By the morning of the 14th the depression was off the northwestern coast of Ireland.

IV.—This is a continuation of the disturbance charted as low area ii., on chart i. of this REVIEW. On the 13th the depression occupied the Gulf of Saint Lawrence and the Maritime Provinces; it moved by a course slightly north of east to about N. 49°, W. 48°; where it was central on the 14th, causing moderate s. and sw. gales to the eastward as far as W. 40°, while moderate to strong nw. breezes prevailed to the westward of the fiftieth meridian. Moving northeastward during the 14th, the disturbance was shown near N. 54°, W. 34°, where the pressure ranged from 29.45 (748.0) to 29.6 (751.8). Moderate to strong sw. and w. gales were reported by vessels near the fiftieth parallel, and between W. 35° and W. 25°. On the 16th the storm-centre was moving slowly northeastward north of the fifty-fifth parallel; the sw. winds above referred to had now changed to nw., but showed no diminution in force, while sw. winds prevailed from W. 27° eastward to the British Isles. By the 17th the disturbance had passed to the northwest of the British Isles.

V.—This was probably a continuation of the disturbance charted as low-area iii., on chart i. On the morning of the 17th the depression was shown to the eastward of Nova Scotia, accompanied by rain and moderate to strong breezes. On the 18th the disturbance reached N. 49°, W. 45°; the reports indicate that it increased in energy as it moved eastward, the

lowest reported pressure being 29.5 (749.3); the s. s. "Daniel Steinmann," in N. 48° 37', W. 41° 00', had a strong ssw. gale of force 9, accompanied by heavy rain; at 11 a. m. the wind, after veering to se., suddenly shifted to wsw., barometer 29.5 (749.3); at 5 p. m. the wind was n. by w., force 10; at 10 p. m., wind nw., gradually decreasing in force. During the day the depression moved quickly northeastward, and on the 19th it was apparently near N. 54°, W. 28°, the pressure having further decreased; the s. s. "Scandinavian," in N. 54° 33', W. 25° 30', reported as follows: 19th, barometer remained steady until 5.18 a. m., (Greenwich mean time,) when it began to fall rapidly, wind veering to ese.; 0.20 a. m., one vivid flash of lightning, with thunder and heavy rain, wind ese., force 8 to 9; 12.08 p. m., in N. 54° 44', W. 25° 33', barometer 29.21 (741.9), wind moderating and hauling to westward, force 6; midnight, gale moderating, sea going down. The s. s. "Grecian," (near above position,) reported sse. wind of force 8, barometer 29.83 (757.7), falling; 4 p. m., (Greenwich mean time,) calm, barometer still falling, high sea-swell; 7.20 p. m., (Greenwich mean time,) barometer 28.97 (735.8), light w. wind, high sw. swell; at 2 a. m., of the 20th, the wind shifted to wnw. in a strong gale, barometer rising. On the 20th the disturbance was transferred to about N. 58°, W. 13°, and disappeared beyond the field of observation, the pressure having greatly increased.

VI.—This was a tropical hurricane, which developed south of the twentieth parallel prior to the 19th. The storm-centre moved to the northwestward and recurved to the northeastward, when north and west of the Bermudas, on the 23d or 24th. It evidently passed at a considerable distance from the coasts of the United States, since the only indication of a hurricane noticed by vessels on the seventy-second meridian, was the unusually heavy se. swell which prevailed for several days. In this connection, Captain Timmerman, of the s. s. "City of Alexandria," reports that the se. swell of the 21st, (in N. 34°, W. 74°,) was the heaviest he ever experienced during calm weather. Captain Hess, of the s. s. "Valencia," also reported in N. 30° 11', W. 71° 22', barometer 30.16 (766.1), wind n., force 6, very heavy se. swell, unsettled weather, heavy bank of clouds in the se. The earliest observations indicating the presence of the hurricane are those of the bark "B. F. Watson." On the 19th, in about N. 21° 28', W. 58° 30', that vessel reported threatening weather, barometer falling gradually, wind nne. blowing in strong gusts, and accompanied by heavy rain; 10 a. m., shortened sail and hove to, wind nnw. blowing a gale with heavy rain, barometer 29.73 (755.1); 1 p. m., barometer 29.7 (754.4), wind wnw; 2 p. m., barometer 29.65 (753.1), wind blowing in terrific gusts, and high confused sea running; 4 p. m., barometer 29.68 (753.0), wind moderating and barometer rising, weather clearing. It would thus appear that, on the 18th, the storm-vortex was at a considerable distance to the eastward of the vessel and moving towards the northwest. The next report is that of the U. S. Steamer "Galena," Commander Batcheller, United States Navy, commanding. On the 20th that vessel was in N. 24° 40', W. 61° 26', and reported as under:

Hour.	Barometer (corrected.)		Wind.		Remarks.
	Inches.	Mill.	Dirac'n.	Force	
19th.					
1 a. m.	29.95	760.7	ne.	6-7	Barometer falling slowly.
10 a. m.	29.83	757.7	ne.	10	Sea becoming heavy.
11 a. m.	29.83	757.7	ene.	10	
1 p. m.	29.75	755.6	e. by n.	10	Squalls very heavy and sea rough.
2 p. m.	29.57	751.1	e. by s.	10	Wind hauling gradually to south but sometimes backing again for half an hour.
5 p. m.	29.47	748.5	se. ½ e.	10	Strong cyclone blowing; wind hauling slowly to south.
6 p. m.	29.47	748.5	se.	10	Frequent lulls followed by heavy gusts; heavy, irregular sea.
9 p. m.	29.63	752.6	ssc.	10	Barometer rising.
11 p. m.	29.72	754.9	s. by e.	10	Wind hauling to south and moderating slightly.
20th.					
3 a. m.	29.79	756.7	s.	9	Moderating.
5 a. m.	29.87	758.7	ssc.	8	Very heavy squall of wind and rain from south-southeast from 4 to 5.30 a. m.
6 a. m.	29.91	759.7	ssc.	7	Wind and sea moderating.

This report shows the storm-centre to have been southeast of the ship, and moving toward the west; during the 18th and 19th the storm vortex was therefore between N. 18°, W. 58°, and N. 26°, W. 63°, and moving in a northwesterly direction between the "B. F. Watson" and the "Galena." The following reports serve to indicate the probable course of the storm and its violence: s. s. "Flamborough," in N. 24°, W. 66°, on the 19th, experienced heavy gales and lost spars and deck fittings; on the 20th the bark "Folkefesten," in N. 28° 10', W. 65° 41', had a heavy ne. gale veering to s. and w. and lasting two days; vessel lost several sails. The brig "Abbie Clifford," in N. 29° 40', W. 69° 30', reported barometer (aneroid,) 30.12 (765.0), wind ne., force 6, long heavy se. swell; upper clouds moving slowly from s. and lower from ne. On the 21st the brig "Helen O. Phinney," in N. 27°, W. 66°, took a hurricane from s. to wnw., lost foremast and all attached. On the 22d the brig "Clara Jenkins" was dismasted in a hurricane in N. 33°, W. 67°, and on the same date the brig "Daphne," near N. 32°, W. 70°, reported as follows: 4 p. m., (Greenwich mean time,) took a hurricane which lasted with great violence until the 24th; the wind was at first e., then ne., and kept gradually backing until it finally settled in the sw.; the barometer fell to 29.7 (754.4). The wind blew hard throughout the forty-eight hours, but during the passing rain squalls it was terrific; the sea was very high and irregular. On the 23d the bark "Emilia T.," in N. 34° W. 68°, encountered a hurricane from se. by e., veering to nw. and lasting twenty-four hours, lost sails.

This report seems to indicate that the hurricane recurved somewhere near the position given by the "Emilia T." On the 25th, the s. s. "Britannia," in N. 38° 15', W. 63° 10', reported having encountered a cyclone from sw. which suddenly flew around to ne. and then to se., with very heavy sea, vessel shipped large quantities of water; damaged boats and lost sails. The s. s. "Republic" reported, 4.21 p. m., Greenwich mean time, N. 41° 39', W. 60° 29'; at 8.2 p. m. barometer 29.79 (756.7), wind s., force 4, heavy squalls of wind and rain, wind veering to se. in the squalls; midnight, barometer 29.68 (753.9), wind ese., force 8, moderate gale, with fierce squalls; 14h. 2m., barometer 29.48 (748.8), wind shifted to ene., and increased, squalls more frequent; 16h. 2m., barometer 29.22 (742.2), wind veering to northward and blowing with hurricane force, with heavy confused sea; 18h. 2m., gale at its height, fierce squalls, barometer beginning to rise; 20h. 2m., barometer 29.44 (747.8), wind n., force 10, heavy confused sea; 24h. 0., barometer 29.53 (750.0), weather moderating, wind veering to nw. Ship's position on the 26th, N. 42° 32', W. 55° 0'.

From the 20th to 25th the storm-vortex seems to have moved very slowly, but after turning to the northeastward the movement became more rapid; the pressure decreased, and the wind and sea became, if possible, more violent. On the 26th the storm centre was probably on the southern edge of the banks of Newfoundland. The bark "Lynwood," in N. 43° 18', W. 54° 31', reported, 3 p. m., 25th, wind s., with rain, barometer falling rapidly, hove ship to, on the starboard tack; 5 a. m., 26th, wind died out, and at 6.20 a. m. a hurricane burst out from ne. throwing the ship nearly on her beam ends; parted topsail sheets, lost lower topsails and blew the sails out of the gaskets; lost eleven sails; the hurricane lasted ten hours, with terrible fury and fearfully high sea.

It was this gale that wrought such damage to the fishing vessels on the Banks; the gale began suddenly at sunrise on the 26th, the wind blowing violently from the e. and shifting to nne. with high sea. It is reported that one hundred dories and eighty men were lost; this great loss of life was due to the fact that many dories were away from their vessels, overhauling nets when the gale burst on them, and were unable to regain their ships. Many fishing vessels ran before the gale and reached port in a disabled condition, others were swamped by the heavy seas and their crews washed overboard. The lowest reliable barometric observations on the 26th, in connection with this storm, as yet in the possession of this office,

are those of the steamships "State of Nevada," and "Pennsylvania." The former, in N. 45° 43', W. 49° 15', reported barometer 28.9 (734.0), wind ese., force 9; at about 9 a. m., (Greenwich mean time), it began to blow strongly from the s. and veered to ese., increasing to a whole gale with very high sea; at noon the wind suddenly shifted to nw. and continued until 2 p. m., blowing very hard. The s. s. "Pennsylvania," in 45° 28', W. 50° 00', reported barometer 28.98 (736.1), wind nne., force 10, thick and sultry.

All vessels between the fortieth and fiftieth meridians and south of N. 47° reported strong gales from s., ne., and nw. The s. s. "Finchley," in N. 47° 20', W. 47° 40', reported strong ne. gale, veering to n. and nw., barometer, not corrected, 28.8 (731.5). Moving northeastward during the 26th, the storm-centre reached N. 51°, W. 36°, on the 27th, the barometer having risen to 29.41 (747.0), as reported by the s. s. "British Princess," in about N. 49° 20', W. 37° 20'. From 10.30 a. m. to 2.30 p. m., (Greenwich mean time,) of the 27th, that vessel experienced a heavy gale from wsw., w., and nw. The s. s. "Habsburg" reported: 27th, 2.40 a. m., barometer 29.59 (751.6), wind sse., force 7; 3.40 a. m., in N. 48° 20', W. 40° 00', barometer 29.45 (748.0), wind se., force 8; 4.40 a. m., wind s., force 10; 5.40 a. m., wind sw., force 10; 6.40 a. m., wsw., force 9, sea very heavy and irregular. From 6.40 a. m. till 10.40 a. m., wind wsw., force 8, barometer rising; at 10 a. m., wind changed to wnw.; from 10 a. m. to noon, wind decreasing and barometer rising. By the 28th the depression had moved northeastward to about N. 56°, W. 21°, the region of least pressure being indicated by the isobar for 29.5 (749.3); the storm had apparently decreased in energy, as vessels to the west of the centre reported northerly to northwesterly winds of force 5 to 7, and the wind remained moderate in front of the depression. On the 29th the disturbance was near the Irish coast.

VII.—This disturbance was apparently central over the northern part of the Gulf of Saint Lawrence on the 21st; moving northeastward it was shown near N. 52°, W. 48°, on the 22d. On that date, the s. s. "Oregon," in N. 54° 27', W. 44° 14', reported barometer 29.56 (750.8), wind sse., force 3; and the s. s. "Grecian," in N. 54° 24', W. 44° 17', barometer 29.57 (751.1), wind ssw., force 2, cloudy. The s. s. "Scandinavian," in N. 50° 3', W. 44° 19', also reported barometer 29.63 (752.6), wind very unsteady, from se. to w., cloudy, with occasional rain squalls. On the 23d the s. s. "Oregon," in N. 55° 19', W. 36° 29', reported barometer 29.33 (745.0), wind ssw., force 4. During the day the disturbance moved northeastward, and disappeared beyond the field of observation.

VIII.—The data relating to this disturbance, which was apparently a tropical hurricane, are very meagre prior to the 28th, so that, at the present writing, it is impossible to determine when and where the storm originated. The following reports may have some connection therewith:

On the 24th the bark "N. Boynton," in N. 24°, W. 60°, took a heavy squall with rain; the wind increased to a hurricane and the vessel lost boats, stove bulwarks, and had decks swept. 25th, the bark "Paolina" in N. 25° 49', W. 62° 22', took a hurricane from nw. veering to sw. and w., lasting until the 28th, (N. 28° 42', W. 68° 02') lost and split sails. Same day the brig "Maggie Glen," in N. 25° 14', W. 64° 59', encountered a hurricane; vessel was thrown on her beam ends and abandoned; Captain Knock, who has made fifty-eight trips to the West Indies, reports that this was the most violent hurricane he ever experienced. The ship "Eclipse" reported: August 19th, in N. 16°, longitude not given, (probably between W. 45° and 55°,) threatening weather, raining in torrents constantly for four days, wind hauled to sse.; appearances indicating a cyclone, hove to for twelve hours, when the weather began to improve, but on proceeding to the northwestward it grew worse again; followed it along until the 28th, in N. 29° 40', W. 64°, then hove to again; in twenty-four hours the weather cleared and the wind hauled to sw. On the 28th the bark "Alsen," in N. 32°, W. 71°, had a strong ne. gale, lasting twenty-four hours.

The reports used in tracing this disturbance are the following: The brig "Daphne," on the 28th, in N. 35° 07', W. 66° 46', reported, 2.30 a. m., heavy se. gale, which continued with great force until 2.30 a. m. of the 29th, when it blew a hurricane. The vessel was knocked down, the sea making a complete breach over her; cut away the foretopmast backstays, the foretopmast going over the side and carrying with it the foremast head, maintopmast, jibboom and all attached. The foresail was well secured, but it was blown and washed out of the gaskets and lost. The weather remained stormy throughout the 29th, 30th, and 31st. At Bermuda the wind blew with the force of a fresh gale from se. on the 28th, changing on the 29th to a moderate sw. gale, squally weather. Vessels near the seventieth meridian had strong ne. gales, with long heavy south, and short east, swells. After passing Bermuda the storm-centre appears to have moved nearly due north, low area vi., of chart i., probably uniting with this disturbance during its passage along the coasts.

On the 29th the storm-centre was near N. 40°, W. 67°, the bark "Chignecto," in N. 40° 15', W. 65° 00', had a severe sse. gale, shifting to nw. blowing with hurricane force for twelve hours, lost sails, etc. The s. s. "State of Nevada," reported at 2 a. m., (Greenwich mean time,) 29th, light e. wind; 6 a. m., fresh breeze from same direction, with heavy showers and lightning in the northwest; 10 a. m., moderate gale increasing rapidly; noon, N. 41° 02', W. 66° 04', barometer 29.68 (753.9), gale increasing and veering to ne. with constant rain; 2.45 p. m., blowing a whole gale from ne. with very high sea; 7 p. m., wind moderating and veering to west, lowest barometer 28.98 (736.1), at 4 p. m. By midnight of the 29th the storm-centre was probably at no great distance from the coast of Nova Scotia, when the course changed to the eastward; great damage was done to vessels in the harbors of Cape Breton island, and many vessels put into Halifax to repair damages. The storm was very disastrous to fishing vessels on the Banks; many of these, being disabled in the gale of the 26th, were unable to reach port before the present hurricane swept over them, and were not in a condition to withstand it. Vessels as far eastward as the fifty-seventh meridian, reported terrific gales on the 29th. On the 30th the storm-centre was near N. 45°, W. 57°, as indicated by the following: s. s. "British Princess," 10 a. m., (Greenwich mean time,) 30th, strong gale set in, force 9 to 10, continued till 3.40 p. m., when it began to moderate, minimum barometer reading during the gale 29.38 (746.2), wind sw. At 5.40 a. m., five hours before the height of the gale, the barometer read 29.75 (765.6); the wind afterward shifted to wnw., force 9 to 10, ship's position at noon N. 40° 30', W. 56° 10'. S. S. "Fulda," reported 3 a. m., (Greenwich mean time) 30th, wind began to back and increased in force; the following observations were taken during the gale:

Hour.	Barometer (corrected.)		Wind.		Remarks.
	Inches.	Mill.	Direction.	Force	
4 a. m.	29.79	756.7	se.	6	Heavy rain; lightning at intervals.
8 a. m.	29.16	740.7	sse.	8	
9 a. m.	29.20	741.7	sw.	9-10	
10 a. m.	29.25	742.9	sw. by w.	9-10	Heavy and breaking sea.
11 a. m.	29.36	745.7	sw.	9-10	
12 m.	29.41	747.0	sw. by w.	9-8	Position, N. 43° 26', W. 58° 47'.
4 p. m.	29.81	757.2	w.	7	

S. S. "Habsburg:"

Hour.	Barometer (corrected.)		Wind.		Remarks.
	Inches.	Mill.	Direction.	Force	
3.46 a. m.	29.89	759.2	se.	7	Minimum.
7.50 a. m.	29.40	746.7	se.	9	
8.50 a. m.	29.23	742.4	se.	9	
9.50 a. m.			sw.	10	
10.50 a. m.			sw.	10	

From 11 a. m. the barometer began to rise, and at 11.50 a. m. it read 29.5 (749.3), wind wsw., force 10; at 0.47 p. m. (near N. 43° 15', W. 57° 20'), wind decreasing; 3.47 p. m., wind w. by s., force 8, barometer 29.7 (754.4); 7.51 p. m., wind wnw., force 6, barometer 29.94 (760.5); a very heavy sea prevailed during the storm. The s. s. "Rotterdam," reported, 4 a. m., barometer 29.2 (741.7), wind sw., force 10, perfect storm, high cross sea; 7 a. m., barometer 29.03 (737.3), wind w., force 9, gradually decreasing; the wind changed during the time of the heaviest gusts; the upper atmosphere was clear, but below were dense clouds of haze or scud, rendering it impossible to see ahead; the sea was white with foam and fearfully high; lightning was observed in the southwest and west. At noon the ship's position was N. 42° 45', W. 59° 24'.

During the day the storm continued its northeastward course, maintaining all its fury, and by the 31st it was probably central near N. 52°, W. 36°. The s. s. "Arizona" in N. 47° 55', W. 45° 22', reported 12.08 p. m. (Greenwich mean time), barometer 30.09 (764.3), wind sse., force 4, barometer falling rapidly and wind increasing; 9 p. m., barometer 29.42 (747.3), wind s., force 7; 2 a. m. of the 31st, the wind gradually hauled to wsw., force 9, and the barometer read 29.32 (744.7), very heavy sea; 2.30 a. m., wind suddenly hauled into ne., force 7, and the barometer rose even more rapidly than it had fallen, the weather became fine but the high westerly sea kept up. At 12.08 p. m. of the 31st the s. s. "Waesland," in N. 49° 15', W. 36° 34', reported barometer 29.23 (742.4), wind nnw., force 10, high confused sea. This storm was probably identical with that reported by vessels between W. 30° and the British coasts on September 1st and 2d, and appears to have lost none of its violence on nearing the coasts.

OCEAN ICE.

Chart ii. also exhibits the southern and eastern limits of icebergs in the north Atlantic during the month of August, 1883. This chart is based on reports communicated by shipmasters to this office, reports furnished through the co-operation of the "New York Herald Weather Service," and other data published in the "New York Maritime Register."

The small number of vessels reporting icebergs during August, 1883, seems to indicate that these dangers to navigation are rapidly disappearing from the ice-region of the north Atlantic. The easternmost icebergs reported during the month were observed near the forty-fourth meridian, the southern limits being about N. 43° 30'.

Compared with the chart for the preceding month, (July, 1883,) a slight change is shown in the extent of the ice-region, the eastern limit having moved about 1° to the eastward, while the southern limit is also about 1° further north than in last month.

Icebergs were reported as follows:

2d.—Ship "Hagarstown," in N. 43° 27', W. 50° 25', saw a very large iceberg.

3d.—S. S. "Frisia," in N. 45° 51', W. 47° 53', passed an iceberg about one hundred and twenty feet high; s. s. "Grecian Monarch," in N. 45° 56', W. 49° 0', passed two icebergs; s. s. "Grecian," in N. 53° 6', W. 50° 0', passed a large iceberg. Saw none east of this.

5th.—S. S. "Abyssinia," in N. 45° 46', W. 48° 54', passed a large iceberg bearing ssw., distant about six miles.

6th.—S. S. "Schiedam," in N. 45° 30', W. 48° 54', passed a large iceberg.

7th.—S. S. "Oder," in N. 44° 55', W. 49° 4', passed a large iceberg; s. s. "Cassius," in N. 44° 12', W. 53° 40', passed an iceberg two hundred feet high.

8th.—Bark "Diamant," in N. 44° 36', W. 48° 40', passed a large iceberg; s. s. "Donau," in N. 44° 22', W. 48° 57', passed an iceberg two hundred and sixty feet high.

10th.—S. S. "France," in N. 43° 26', W. 51° 41', passed a large iceberg.

11th.—Bark "Carpasian," about ninety miles ene. of Saint John's, Newfoundland, passed a number of icebergs.

23d.—Ship "Amelia," in N. 48°, W. 44°, passed several large icebergs; s. s. "Grecian," in N. 53° 0', W. 50° 45', saw a large iceberg; from there to Belle Isle, passed only five icebergs; Straits quite clear.

28th.—S. S. "Clintonia," in N. 48° 40', W. 45° 0', passed two large icebergs.

TEMPERATURE OF THE AIR.

[Expressed in degrees, Fahrenheit.]

The distribution of mean temperature over the United States and Canada, for the month of August, 1883, is exhibited on chart iii., by the dotted isothermal lines.

In the first column of the following table are shown the normal temperatures of August in the several districts, as determined from the Signal-Service records; the second column shows the mean temperature of August, 1883, and the third column shows the departures of August, 1883, from the normal:

Average Temperatures for August, 1883.

Districts.	Average for August. Signal-Service observations.		Comparison of Aug., 1883, with the average for several years.
	For several years.	For 1883.	
New England	69.5	68.1	1.4 below.
Middle Atlantic states.....	73.8	72.3	1.5 below.
South Atlantic states.....	79.3	78.2	1.1 below.
Florida peninsula	82.2	82.9	0.7 above.
Eastern Gulf	79.6	79.5	0.1 below.
Western Gulf	81.6	81.1	0.5 below.
Tennessee	77.2	74.6	2.6 below.
Ohio valley.....	75.9	72.1	3.8 below.
Lower lakes	70.1	66.5	3.6 below.
Upper lakes	67.3	63.5	3.8 below.
Extreme northwest.....	66.3	62.7	3.6 below.
Upper Mississippi valley.....	74.6	70.2	4.4 below.
Missouri valley.....	75.1	70.9	4.2 below.
Northern slope.....	69.0	66.7	2.3 below.
Middle slope.....	72.5	72.9	0.4 above.
Southern slope.....	79.6	80.2	0.6 above.
Southern plateau.....	78.5	78.3	0.2 below.
North Pacific.....	64.4	62.4	2.0 below.
Middle Pacific.....	70.5	69.7	0.8 below.
South Pacific.....	80.6	79.9	0.7 below.
Mount Washington, N. H.	47.5	43.8	3.7 below.
Pike's Peak, Colo.	39.0	38.8	0.2 below.
Salt Lake City, Utah	74.4	76.4	2.0 above.
Brownsville, Texas.....	83.1	83.6	0.5 above.

The mean temperature for August is below the normal over the whole country, except in Florida and over an area extending from southern Texas northwestward to Utah, where it is slightly above the normal, and in the east Gulf states, where a normal condition has prevailed. The deficiencies are most marked from the lower lake region and Ohio valley westward to the Missouri valley and extreme northwest, where they vary from 3° 6' in the lower lake region and extreme northwest to 4° 4' and 4° 2' in the upper Mississippi and Missouri valleys, respectively. In Tennessee and in the North Pacific coast region, the deficiencies are 2° 6' and 2°, respectively; along the Atlantic coast they vary from 1° 1' to 1° 5'; and in the west Gulf states and California they are less than 1°.

In the middle and southern slopes, at Salt Lake City, Utah, and at the stations on the coast of Texas, the mean temperature has been slightly above the normal for August.

The following are some of the highest and lowest monthly mean temperatures reported from the Signal-Service stations:

Stations reporting highest.	Stations reporting lowest.
Yuma, Arizona..... 91.0	Pike's Peak, Colorado..... 38.8
Galveston, Texas..... 84.6	Mount Washington, New Hampshire..... 43.8
Key West, Florida..... 84.3	Cape Mendocino, California..... 53.6
Camp Thomas, Arizona..... 84.1	San Francisco, California..... 57.9
Cedar Keys, Florida..... 83.7	Marquette, Michigan..... 61.0
Indianola, Texas..... 83.6	Olympia, Washington..... 61.3
Brownsville, Texas..... 83.6	Alpena, Michigan..... 61.7
New Orleans, Louisiana..... 83.3	Escanaba, Michigan..... 61.9
Mobile, Alabama..... 82.0	Mackinaw City, Michigan..... 62.0
Fort Concho, Texas..... 81.9	Deadwood, Dakota..... 62.5

The general distribution of mean temperature for August,